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10/687,551	10/15/2003	Pascale Abadie	BREV121835	7694

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EXAMINER

THEXTON, MATTHEW

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,551

Applicant(s)

ABADIE ET AL.

Examiner

Matthew A. Thexton

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>one sheet</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

Page 9, line 15; and page 15, line 28; in the formula for zinc borate, is employed "14,5" which is thought to properly be - -14.5- -.

At page 12, line 28, the term "radicalar" is thought to properly be - -radical- -.

Appropriate correction is required.

Drawings

The drawings are objected to because 1) the axes are unlabeled, and 2) the results are unlabeled, each should correspond to that which is set forth in the Description.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

Art Unit: 1714

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims Version

The claims as originally submitted have been examined.

Claims Analysis

Claim 1 is directed to material for neutron shielding and maintenance of subcriticality comprising:

- a matrix based on vinylester resin;
- at least one polyamide; and
- an inorganic filler capable of slowing and absorbing neutrons.

Dependent claims 2 and 3 further limit the type of polyamide.

Dependent claims 4 and 4 further limit the type of resin.

Claim 6 depends from claim 1 and further limits the type of filler to:

- at least one hydrogenated inorganic compound and
- at least one inorganic compound of boron.

Claims 7 and 9 depend from claim 6 and further specifies the type of hydrogenated compound to alumina hydrates and magnesium hydroxide.

Art Unit: 1714

Claims 8 and 10 depend from claim 6 and further limit the type of boron compound.

Claim 11 depends from claim 6 and further specifies the concentrations of hydrogen.

Claim 12 depends from claim 6 and further specifies the concentrations of boron.

Claim 13 depends from claim 1 and further requires 30-45 weight % vinylester resin, based on the three components.

Claim 14 depends from claim 13 and further requires 10-30 weight % polyamide, based on the three components.

Claim 15 depends from claim 1 and further requires the material density be between 1.3 and 1.6.

Independent claim 16 requires steps for making the material comprising:

- mixing vinylester resin, polyamide, the filler, and at least one resin

- polymerization accelerator;

- adding a catalyst to the mix;

- degas the mix under vacuum;

- pour the mix in a mold; and

- allow to set.

Claim 17 depends from claim 16 and requires the mold is composed of a compartment of a packaging for transport, interim storage, and/or ultimate storage of radioactive products.

Art Unit: 1714

Claim 18 depends from claims 1-15 and recites a packaging for transport, interim storage, and/or ultimate storage of radioactive products.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 employs multiple uses of "and" in setting forth the various types of vinylester resins. The phraseology is unclear. The claim has been interpreted as though each type of resin is separated by a comma and there is only one "and" which occurs before the final item.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites that hydrated alumina has the formula Al_2O_3 . This is thought to be incorrect. Alumina hydrate is thought to be $\text{Al}(\text{OH})_3$, also sometimes described as the water hydrate of alumina, $\text{Al}_2\text{O}_3 \cdot x\text{H}_2\text{O}$.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of copending Application No. 10/497267 in view of Collins (US 3261800) or Vogel (US 3609372). The present claims employ polyamide in the neutron shield materials; the claims in copending '267 do not. Both '800 and '372 suggest use of polyamides in neutron shield materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

This is a provisional obviousness-type double patenting rejection.

Claims 1-11 and 13-18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 10/490714 in view of Collins (US 3261800) or Vogel (US

Art Unit: 1714

3609372). The present claims employ polyamide in the neutron shield materials; the claims in copending '714 do not. Both '800 and '372 suggest use of polyamides in neutron shield materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

This is a provisional obviousness-type double patenting rejection.

Assignee Requirements

Claims 1-18 are directed to an invention not patentably distinct from claims 1-16 of commonly assigned 10/497267 in view of Collins (US 3261800) or Vogel (US 3609372). Specifically, The present claims employ polyamide in the neutron shield materials; the claims in copending '267 do not. Both '800 and '372 suggest use of polyamides in neutron shield materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone. .

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned 10/497267, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c)

Art Unit: 1714

and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Claims 1-11 and 13-18 are directed to an invention not patentably distinct from claims 1-16 of commonly assigned 10/490714 in view of Collins (US 3261800) or Vogel (US 3609372). Specifically, The present claims employ polyamide in the neutron shield materials; the claims in copending '714 do not. Both '800 and '372 suggest use of polyamides in neutron shield materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned 10/497267, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c)

Art Unit: 1714

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A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim Rejections

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being obvious over Valiere (US 2005/0012054-A1) in view of Collins (US 3261800) or Vogel (US 3609372).

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2). The present claims employ polyamide in the neutron shield materials; the claims in '054 do not. Both '800 and '372 suggest use of polyamides in neutron shield materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

Art Unit: 1714

Claims 1-11 and 13-18 are rejected under 35 U.S.C. 103(a) as being obvious over Malalel et al. (US 2005/0001205-A1) in view of Collins (US 3261800) or Vogel (US 3609372).

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2). The present claims employ polyamide in the neutron shield materials; the claims in '205 do not. Both '800 and '372 suggest use of polyamides in neutron shield materials. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone.

Art Unit: 1714

Claims 1-4, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins (US 3261800).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

The reference discloses mixtures of thermoplastics polymer and boron nitride for use as neutron shield. Further, admixing and molding are disclosed. Polymers suggested include polyamides and polyacrylates (column 1, lines 48-55) and polymethacrylates is exemplified (example 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each would be suitable alone. The proportions in Applicant's claims would be readily determined by routine experimentation given the suggestion that any of the polymers are suitable. Physical properties are inherent, such as the density.

Official notice is relied upon to conclude that it would have been obvious to one of ordinary skill in the art at the time of the invention to have relied upon the well known expedients in the polymer art in order to achieve the molded articles which are generally disclosed in '800. The use of conventional steps and means such as catalysts, accelerators, degassing of resins, pouring into molds, and allowing to cure/set are not asserted to be inventions in the present disclosure, and one of ordinary skill in the art at the time of the invention would have a reasonable expectation that the presence of the fillers would not work to defeat the performance of conventional steps and means.

Art Unit: 1714

Claims 6-9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins (US 3261800) as applied to claim 1 above, and further in view of JP 55-119099 (as evidenced by the Derwent abstract, a translation has been requested and will be forwarded when available).

Reference '800 is discussed hereinabove.

'099 discloses neutron shield material comprised of unsaturated polyester resin and self-extinguishing agent such as aluminum hydroxide. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the self-extinguishing agent such as aluminum hydroxide in the material of '800 since they are directed to the same field of endeavor and the additional property is desirable for the reasons promoted by '099, thus arriving at the material encompassed by claims 6-9, 11, and 12. The physical properties are inherent, such as the hydrogen and boron content.

Claims 1-4, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogel (US 3609372).

The present claims are broadly discussed hereinabove in the section **Claims Analysis** which is incorporated by reference.

The reference discloses mixtures of polymer and boron compounds for use as neutron shield. Further, admixing and molding are disclosed. Polymers suggested include polyamides and unsaturated polymerizable polyesters (column 3, lines 6-12, example 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to employ mixtures of suggested polymers given the disclosure that each

Art Unit: 1714

would be suitable alone. The proportions in Applicant's claims would be readily determined by routine experimentation given the suggestion that any of the polymers are suitable. Physical properties are inherent, such as the density.

Official notice is relied upon to conclude that it would have been obvious to one of ordinary skill in the art at the time of the invention to have relied upon the well known expedients in the polymer art in order to achieve the molded articles which are generally disclosed in '372. The use of conventional steps and means such as catalysts, accelerators, degassing of resins, pouring into molds, and allowing to cure/set are not asserted to be inventions in the present disclosure, and one of ordinary skill in the art at the time of the invention would have a reasonable expectation that the presence of the fillers would not work to defeat the performance of conventional steps and means.

Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogel (US 3609372) as applied to claim 1 above, and further in view of JP 55-119099 (as evidenced by the Derwent abstract, a translation has been requested and will be forwarded when available).

Reference '372 is discussed hereinabove.

'099 discloses neutron shield material comprised of unsaturated polyester resin and self-extinguishing agent such as aluminum hydroxide. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the self-extinguishing agent such as aluminum hydroxide in the material of '372 since they are directed to the same field of endeavor and the additional property is desirable for the

Art Unit: 1714

reasons promoted by '099, and to employ boron carbide as the boron compound, thus arriving at the material encompassed by claims 6-12. The physical properties are inherent, such as the hydrogen and boron content.

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Alliegro et al. (US 3133887) is cited to show the use of epoxy resins with boron compounds to make neutron shields.

Chvatal (US 3361684) is cited to show colemanite is a known source of boron in neutron shields, in resins based upon epoxy or polyester (column 3, lines 18-30, examples).

Zirkle et al. (US 2796411) is cited to show the use of methyl methacrylate resins with boron compounds to make neutron shields.

Kamoshida et al. (US 6797972-B2) is cited to show the use of magnesium hydroxide as fire retardant additive (column 7, lines 7-20) in materials used as neutron shields.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Thexton whose telephone number is 571-272-1125. The examiner can normally be reached on Monday-Friday, 9:30 to 6.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan S. Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Matthew A. Thexton
Primary Examiner
Art Unit 1714